DOCUMENT RESUME

ED 347 534 CS 213 427

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TITLE Sense and Sensibility in Technical Documentation: How Feminist Interpretation Strategies Can Save Lives in the Nation's Mines.
PUB DATE Mar 92
NOTE 31p.; Paper presented at the Annual Meeting of the Conference on College Composition and Communication (43rd, Cincinnati, OH, March 19-21, 1992).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Accidents; *Coal; *Discourse Analysis; *Feminism; Information Sources; *Mining; Organizationalcommunication; Technical Writing; Writing Research
IDENTIFIERS Accident Investigation; Feminist Criticism; *Public Discourse; *Text Factors; Voice (Rhetoric)

ABSTRACT

This article analyzes post-accident investigation reports from a feminist perspective, showing how a feminist interpretation can change the way technical writers look at expertise and evidence. In comparing formal documentation of mine inspection reports with women's testimony about conditions in the mines, the article shows: (1) how the conventions of public discourse privilege the rational (male) objective voice and silence human suffering; (2) how the notion of expertise excludes women's experiential knowledge; (3) how the conventions of public discourse sanction the exclusion of alternate voices and thus perpetuate salient and silent power structures; and (4) how interpretation strategies which fail to consider unstated assumptions about gender, power, authority, and expertise seriously compromise the health, safety, and lives of miners and, in a broader sense, of all those who are dependent upon technology for their personal safety. Following a review of feminist text analysis, the article discusses technology and the feminist perspective, the rhetorical function of post-accident investigation reports, industry assumptions about mine safety and health, feminist analysis of the report, the impact of Mine Safety and Health Administration's rhetorical conventions on risk analysis and assessment in the nation's mines, women's narratives, sense and sensibility in technical documentation, and implications for technical writing. Fifty-nine references are attached. (Author/SR)

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This article analyzes post-accident investigation reports from a feminist perspective to show 1) how the conventions of public discourse privilege the rational (male) objective voice and silence human suffering; (2) how the notion of expertise excludes women's experiential knowledge; (3) how the conventions of public discourse sanction the exclusion of alternative voices and thus perpetuate salient and silent power structures; and (4) how interpretation strategies which fail to consider unstated assumptions about gender, power, authority, and expertise seriously compromise the health, safety, and lives of miners -- and in a broader sense -- of all those who are dependent upon technology for their personal safety.

Sense and Sensibility in Technical Documentation: How Feminist Interpretation Strategies Can Save Lives in the Nation's Mines

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In her preface to *The Poetics of Gender*, editor Nancy K. Miller argues that "the social construction of sexual difference" impacts the production, reception, and history of texts as well as the conventions and categories of critical discourse within which we all operate (xi). In short, she argues, "the acts of interpretation we perform and which come to embody us, are inextricably involved with the conventions and categories of identity itself" (xi). Many feminists, in fact, question whether we can interpret anything at all without a consideration of gender, class, and race (cf. N. Miller; Sherwin; Stimpson; VonMorstein; Wittig; Mullett; Jardine; Berg; Code, "Credibility").

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From a feminist point of view, writing is "gendered" to the extent that writers use signs or clues in the text which reveal the sex, class, or status of the writing subject. For feminist theorists, gender reveals itself in the subject's voice -- not merely in the choice of pronouns, but in the very attempt to arrange words (Wittig 65-6). Whether feminists believe in an "essential" difference between male and female writing or in a socially constructed difference, they generally agree that there are structural differences in the way men and women -- and in particular, men and women in power -- arrange their words, orient their ideas, and construct the "subject" underlying the text's meaning. A feminist analysis thus questions the writer's ability to produce an "exact account" of any event without a consideration of the gendered assumptions that govern the construction of the text.

In articulating the silent codes and unarticulated assumptions in a text, moreover, a feminist analysis reveals both the hidden power structures that govern the construction of a text and the silent and salient privileging of one voice over another. A feminist interpretation is thus overtly iconoclastic (1) to the extent that the reader challenges attempts to reduce discourse to a single image or representation of truth and (2) to the extent that the reader fails to accept the codes embedded in the text (Berg 208).

In scientific and technical discourse, a feminist analysis challenges the unacknowledged power relations implicit in the traditional Cartesian model of science based on the concept of the objective, interchangeable knower (Harding 58). From this point of view, scientific discourse -- with its traditional notions of expertise and authority -- excludes the feminine perspective and employs what Lorraine Code calls the double standard of knowledge in which experience is considered second class to "knowledge" ("Credibility" 64). This hierarchical distinction between knowledge and experience, Code

argues, confines women within narrowly circumscribed private spheres of knowledge and expertise (64). In the public sphere, Catharine MacKinnon contends, the conventions of scientific or objective discourse simply rationalize male power and enforce women's powerlessness in socially constructed legal norms and structures. Thus, she argues:

> the state will appear most relentless in imposing the male point of view when it comes closest to achieving its highest formal criterion of distanced aperspectivity. When it is most ruthlessly neutral, it will be most male....When it most closely conforms to precedent, to "facts,' to legislative intent, it will most closely enforce socially male norms and most thoroughly preclude questioning their content as having a point of view at all...(MacKinnon).

Von Morstein uses the archetype Cassandra to concretize the exclusion of women's voices from from public discourse. According to Von Morstein, "Cassandra's story is the story of her angst because she was condemned to be alive in the face of blindness, of disbelief. She could not choose not to "see." But if she spoke from the ground of "her own experiences, she was necessarily bound to "break, abandon, or expand some of the rules that govern our common language and behavior" and she risked the animosity and aggression of others. To conform, she had to relinquish her freedom and speak the language of what von Morstein calls *Uber-einstimmungssucht* or "agreement-addiction" -- socially constructed discourse that does not challenge or threaten the status quo (56-7).

TECHNOLOGY AND THE FEMINIST PERSPECTIVE

Although researchers have considered the impact of gender on communication practices such as collaboration, sexual harassment, and conversation in

the workplace (cf. Lay, "Interpersonal Conflict"; Tebeaux; Lay, "Feminist Theory"; Allen; Flynn et al.; Baker and Gouril-Gambrell; Carrell; Halterman et al.), they have not used feminist theory to analyze the influence of gender on the social construction of knowledge in large government agencies (cf. Winsor; Miller; Dombrowski) nor to analyze documents outside the traditional research and development framework.

A feminist ethic raises questions about the rhetorical function of technical reports which document a single version of events "for the record." Instead, a feminist ethic demands that readers use a double standard for judging texts: the standard of historical or representational truth (the standard of historical accuracy) -- and the additional standard of performative truth -- the ability of a text to change reality or events. From this perspective, technical documentation that merely records events "for the record" -- in the historical sense -- may fail when judged by the standards of performance -- how documents function to solve problems or prevent disaster in the future.

In the following paper, I will show how a feminist interpretation can change the way technical writers look at expertise and evidence in technical writing. In comparing formal documentation of mine inspection reports with women's testimony about conditions in the mines, I will show

(1) how the conventions of public discourse privilege the rational (male) objective voice and silence human suffering;

(2) how the notion of expertise excludes women's experiential knowledge;[1]

(3) how the conventions of public discourse sanction the exclusion of alternative voices and thus perpetuate salient and silent power structures; and

(4) how interpretation strategies which fail to consider unstated assumptions about gender, power, authority, and expertise seriously compromise the health, safety, and lives of miners -- and in a broader sense -- of all those who are dependent upon technology for their personal safety.

THE RHETORICAL FUNCTION OF POST-ACCIDENT INVESTIGATION REPORTS

The Mine Safety and Health Administration prescribes specific formats and procedures for post-accident investigation reports in the *Manual for Investigation of Coal Mine Disasters* (1977). According to the *Manual*, the purpose of a post-accident investigation is "to determine how and why an accident occurred in order that remedial actions may be taken to prevent a recurrence in the same or in another mine" (7). According to one official at the Mine Safety and Health Administration, however, post-accident investigation reports are "pretty much fill in the blank, pro forma" operations. Writers learn to look for a single, technical cause of the accident and closely imitate the style and syntax of regulations to construct findings and conclusions. [2]

Like other reports, the *Report of Investigation/Underground Mine Coal Dust Explosion*, for the No. 11 Mine (ID No. 15-02290) Adkins Coal Company, Kite, Knott County, Kentucky, December 7, 1981, follows a standard format:

- o The abstract summarizes the factual findings of the report and sets the tone for the report that follows: passive verbs, objective findings, and technical details within a legal framework.
- o Part I includes (1) two pages of general information, including the organizational structure of the mine, a list of mine management

officials, company data, location of the mine, sample methods and tests, and the date of the last inspection, October 7-22, 1981, when seven citations were issued, four in the underground workings of the 007 section (where the explosion occurred) and (2) eight pages describing "Mining Methods, Conditions, and Equipment."

- Part III of the report (Investigation, Discussion, and Evaluation) describes the explosion and recovery operations in great detail, almost hour to hour.
- Part IV lists 31 findings of fact and eight contributing violations, including data from post-accident laboratory analyses and observations and statements from miners employed at the mine prior to the accident. The findings note that tests taken after the accident reveal that the volatile ratio of the coal in the face area of the no. 1 entry of the 007 section was 0.39 (indicating that the coal dust at this mine was highly explosive).
- Part V (Conclusion) lists six "conditions and practices that contributed to the explosion and its propagation" (28).
- Appendix A lists the name and social security number of the dead miners, as well as their age, sex, job classification, experience at the job, and total mining experience.
- Appendix F contains copies of inspection citations (for safety violations) issued following the explosion.
- There are no recommendations.

Viewed from a feminist perspective, the inspection report demonstrates how the categories and conventions of public discourse reflect industry assumptions about blame and responsibility and masculinist notions of credibility, expertise, and scientific objectivity. Both the format and conventions of the investigation reports encourage inspectors to record and document

"findings" for the record without directly blaming operators or mine supervisors for problems in the mines, but, as the following analysis reveals,

(1) the objective language and scientific format of post-accident investigation reports privilege industry assumptions about risk and safety in the mines, and

(2) the scientific format, chronological ordering of evidence, and regulatory language obscure lines of authority and responsibility and silence the first-hand experience of women, who measure danger in domestic terms (the amount of dust in the washing machine rather than in ppm's, for example).

INDUSTRY ASSUMPTIONS ABOUT MINE SAFETY AND HEALTH

Industry and labor agree that the mining industry in this country has an appalling safety record, but they disagree about the cause of accidents and the effectiveness of MSHA's enforcement under the Mine Safety and Health Act of 1969. While industry blames miners for poor work habits and carelessness, miner advocates blame management for willful violation of the law.

In a 1977 report, the National Coal Association (Bituminous Coal Operators' Association, Inc.) admitted that while industry had experienced a reduction in the total number of disabling injuries, it had not been as successful in reducing injuries as it had in reducing fatalities. But the BCOA challenged the assumption that more inspections and increased regulation would improve mine safety and health. Citing a government-funded Bendix Corporation report, the BCOA report concludes, among other findings, that

(1) the causes of violations usually have little relationship to the causes of accidents;

(2) the level of disabling accidents in underground coal mines which

can be prevented by current enforcement efforts has reached a relatively fixed plateau; [and]

(3) insufficient attention has been given to the fact that accidents are most often caused by deficiencies in worker attitudes, habits, and skills which can only be corrected by training and direction (*Federal Coal Mine Health and Safety Act of 1969* 2).

Moreover, according to Louis H. Hunter, Executive Vice President of the National Independent Coal Operators' Association, enforcement and inspection have little relationship to safety:

> There were two MSHA inspectors in the mine when they had a belt catch on fire. Luckily, no one was injured. But if you would have had 19 inspectors in there, it wouldn't have prevented the fire (304).

Miner advocates like L. Thomas Galloway and J. Davitt McAteer challenge these claims, arguing that Mine Safety and Health Administration investigation reports show that management negligence was at least a contributing cause in 76% of the cases in 1975 (559) and that poor work habits and/or insufficient training was one of a number of factors in only 58% of the cases (559-60). In the Scotia disaster alone (which killed 26 men), they argue,

> at least the first explosion was a direct result of repeated violations of law, especially of the ventilation regulations. Scotia was issued 62 citations for ventilation in two years, yet the intentional disregard of the law shows that the enforcement effort was inadequate, not that it was misdirected. The same holds true for the Hyden explosion (562-3).

FEMINIST ANALYSIS OF THE REPORT

A feminist analysis reveals how the conventions of public discourse privilege the rational objective voice and exclude expression of the human

suffering of the miners. Although one agency official acknowledged that report writers were sensitive to the fact that widows would read the report -- and thus, he claimed, he was careful not to describe the condition of the dead miners in detail, -- the report's language reflects industry assumptions about blame and responsibility in mining accidents. The feminist analysis which follows demonstrates how salient and silent power structures influence the construction of evidence even in theoretically "objective" technical investigation reports:

Workers names appear only in an appendix, where data categories reflect industry's contention that experience and worker error cause accidents. Despite 19 years total mining experience, for example, Bobby Slone, the section foreman at Adkins No. 11, had only one month's experience at the job. The data thus suggests that Slone's inexperience at the job site may have caused the accident, but data on *victims* excludes information on others responsible for rock dusting, testing, inspection, and management. By using only data from the now-dead victims of the explosion, moreover, Appendix A directs attention away from operators' legislated responsibility to provide a safe working environment. Prior to the accident, according the report, at least one miner -- a scoop operator -- left the working section and was thus not injured; the Appendix does not include his name, age, mining experience, or experience at the job, or other miners not injured in the explosion.

The subject focus of the report and ensuing investigation is technical rather than human. The coldly objective language of the Adkins report documents a series of unpreventable events, practices, and conditions precipitated by a technical failure for which no remediation seems possible: "A coal dust explosion occurred...;" "The accident resulted in...;" "The accident oc-

curred...;" The investigation revealed...;" "Evidence indicated..." (i). No responsible human agent appears in the chain of causes that led to the accident: "a train of explosives...failed to detonate. This failure provided too much burden for the rib hole to pull..." (i). The objective scientific discourse thus reinforces the industry's fatalistic notion that accidents occur regardless of human agency or intent.

Passive verbs conceal the subject of the text as well as the agent in the disaster and conflate worker error with management negligence: MSHA Investigators are taught to use the "negative" of the regulation in listing the technical causes of the accident (anon. 1992). Thus, they imitate closely the agency-free language of the regulations in describing the chain of events leading up to the accident: "Each blast hole was charged...; water ...was not applied; coal dust...was permitted to accumulate...; line brattices...were not installed and maintained in the working places to remove the coal dust that was dispersed into suspension when coal was being blasted..." (28). A feminist analysis (as well as good management practice) raises questions about the silences in the text: who permitted dust to accumulate? Who failed to install and maintain line brattices?

Quasi-passive adjectives conflate technical descriptions with possibly causative actions: The report contains two references to the fact that the paper wrapping surrounding the explosives was "slit." The following examples reveal how subtle editing can change a deliberate violation into a simple technical description. In the findings, the language implies that the cartridges were deliberately slit by an unnamed human agent:

> The paper wrapping that contained the explosive cartridges was deliberately deformed by slitting with a razor blade so that it could be compacted in the holes (23).

In the conclusion, however, the writer changes the verb to an adjective. The ambiguous language conceals the deliberate human action responsible for slitting the cartridges:

> Miners employed at the mine stated that the paper wrappings around the cartridges of explosives were slit before inserting the cartridges into the blast holes and that the deformed cartridges were tamped into the hole and blasted without stemming (28).

The document is a five-part research report rather than a problem-oriented report (problem/solution report) or a recommendation report. The *Report of Investigation* follows a format prescribed by the *Manual for Investigation of Coal Mining Accidents*. The carefully formatted categories, careful recording of detail, and standard headings imply a careful investigation of the event, but the authors make no recommendations to improve risk management and assessment in the future. The document is an informational report which provides a single narrative of the accident from a single point of view. Recommendations are inappropriate to the genre. The document functions as an historical record of the event from a single point of view, but fails as a performative document: To utilize the report's technical findings improving mine safety and health in the future, readers must reinterpret evidence in the text.

The report is a report OF an investigation rather than a report TO a responsible agency -- whether government, management or labor. The *Manual for Investigation of Coal Mining Accidents* prescribes a wide distribution for accident reports, with multiple copies for each District office and the MSHA Administrator's office. MSHA District Managers must reanalyze data in the report to construct an action plan to prevent accidents in the future. As

the following example illustrates, however, the lack of a clear audience dilutes the sense of responsibility and mediates against responsible risk management and risk reduction strategies. In a memorandum to William Querry (no. HQ-85-547-S (6026), Joseph A. Lamonica, Administrator for Coal Mine Safety and Health, asks Querry to formulate an action plan to deal with the "dismal record" of repeated accidents at the mines (243). In the memorandum, he notes that two fatalities have occurred within a seven-month period and that ten fatalities have occurred in less than five years. Seven of the ten involved roof fall fatalities. Like the Adkins investigation report, report after report repeats a formulaic sentence describing the cause of the accident in the passive voice with no recommendations and no clear sense of audience:

> The accident and resultant fatality occurred when the victim proceeded into an area of known loose roof before the roof was supported or taken down (243).

Only two accident reports, written by Ronnie Brock in 1984, indicate that management played a role in the accident. His reports attract Querry's attention -- the cause is circled in the testimony -- and prompt a call for an action plan to prevent further disasters.

Although the document reveals that several violations existed prior to the accident, it leaves an ambiguous record of blame and/or responsibility. The final conclusion (number 31) notes that "smoking articles were found in jacket pockets and in lunch buckets of several of the victims." The conclusion carefully itemizes the number of cigarettes and summarizes the pathologists statement that "2 victims had smoking materials in their clothing pockets." Although the report acknowledges that "smoking was not considered a factor in the explosion," the concluding remark that "it was apparent that smoking was a practice underground" shifts blame for the accident from mining

practices to worker habits (reflecting industry assumptions about mine safety and health).

The technical language of the document silences the horror of human suffering and the loss of human life in a mine explosion. In describing the "explosion and propagation" of the accident, the authors tell the story of the flame and forces as "they" moved through the mine, in a traditional technical narrative description. Although the report notes that the forces damaged a jeep parked on the surface near the mine opening, it fails to mention the miners, who were burned -- and killed -- in the explosion:

> Flame and major forces of the explosion traveled out the No. 1 entry and across the last open crosscut and then out all 6 entries. When the flame and forces reached the entries developed to the left off the No. 1 entry, the evidence indicated that they traveled into the left side of these entries until they reached the face. The flame and forces then traveled out the right side of these entries back to the south main entries. The explosion developed enough pressure and velocity to damage the stoppings 12 crosscuts, or 700 feet, outby [sic] the face of the south main on the intake and return side, except the stoppings in the Nos. 27 and 28 crosscuts on the return side which remained intact. ...Other forces also traveled outby [sic] in the south main entries and damaged a concrete block stopping at the intersection of the east main and south main entries. Debris blown by the explosion forces damaged a jeep automobile parked on the surface near the drift openings (19).

The Findings of Fact also report technical details of the explosion but silence the human death and suffering in the disaster. Finding No. 22 reports the results of tests on clothing, safety, hats and lunch buckets, but not on

the bodies of miners:

> 22. Samples of clothing, safety hats, lunch buckets and other articles present in the explosion area were tested to determine the melting point of each. The tests indicated that a temperature of at least 553 degrees Fahrenheit existed in the last open crosscut (24).

THE IMPACT OF MSHA'S RHETORICAL CONVENTIONS ON RISK ANALYSIS AND ASSESSMENT IN THE NATION'S MINES

Ironically, the passive language and nominalized structures in the report also prevent accurate data analysis. MSHA personnel frequently complained that they needed to "read a great deal into the report" to derive data for accident analysis on a larger scale (MSHA personnel 1992). They claimed that silences in the report -- about technical details as well as human responsibility -- prevented accurate analysis, particularly for new technologies like longwall and deep cut mining.

Agency personnel frequently complained that archaic data categories which forced inspectors to categorize accidents as "electrical" or "haulage" thwarted accurate data-gathering and statistical analysis. (Agency personnel 1992). One official, for example, noted that he developed his own system to interpret keywords in the text to derive statistical information for analysis, only to discover the same statistics repeated in other reports with significant figures to three or four digits. Another agency analyst noted that researchers were frequently unable to verify data derived from reports because each analyst interpreted clues in the text differently and thus produced different numbers (Agency personnel 1992). In simple terms, the conventions established by the manual undercut effective risk management and assessment.

WOMEN'S NARRATIVES

Women's testimony in the Oversight hearings contrasts sharply with the highly technical public discourse of the investigation reports and technical analyses. Although only nine women testified in the 1982 hearings, their voices speak clearly of the daily danger in the mines and the refusal of management to deal with imminent danger. The following is the testimony of Jewelene Centers, widow of Tommy Centers:

> I can recall Tommy telling me what bad shape mines was in, and that if things weren't changed, in his words, "they're going to get a bunch of us killed." As you know, that is exactly what happened.
>
> Tommy was a bolting machine operator. He told me that the company did not want him to take the time to set the safety jacks on the bolter, because then they couldn't run as much coal. The company was always pushing the men for more production on coal. Tommy also told me that Harold Baldrige, the superintendent, wouldn't provide him with dust bags for his bolting machine. This meant that more coal dust was left to float in the air. This is the same coal dust that led to the explosion (249).

The women have their own standards for judging danger. Ms. Centers testifies:

> When Tommy worked at Irishman, he never came home as tired or dirty or upset as he did when he worked for Adkins Coal Co. While he worked for Adkins, he constantly kept a headache, and he couldn't even walk across the floor without leaving a trail of coal dust. He told me he had to find another job because the company just didn't care about the men's safety and it was too dangerous to work there (250).

Annis Ashley measured the amount of rock dust in her wash cycles; her own domestic evidence represents "truth" for her, in contrast to mine employees, who must lie to save their jobs:

> Dillard [Ashley] would come home filthy from the mines, and his work clothes always required two or three wash cycles to get all the coal dust out of them.... And had the mines been properly rock dusted the explosion would never have happened. While the employees at the State hearings in Martin, Ky., said that the mines weren't dusty, they have to worry about their jobs. They knew if they told the truth, that they would probably be replaced (247).

The women's testimony reveals a keen awareness that "they are not experts," but they have a clear agenda and motivation for solving problems in the nations' mines. Jennifer Boggs explains:

> Every time a coal miner dies because of unsafe practices, I die a little more inside, too. These men have got to be protected.
>
> When my husband Dennis was killed, I had no idea that the mine was unsafe. When MESA held the hearings in Whitesburg I sat there day after day, I couldn't believe my ears. I was actually stunned to think those men had died for no reason that made any sense to me....
>
> Why do we have MSHA inspectors? They cite a mine for violations and within a few hours they are running coal again. If the inspectors would shut these mines down for a week or so and let them lose some of that precious money, then just maybe they would see how important it is for our men to come home to us.
>
> MSHA should hire widows for inspectors, [she concludes]. They would get the job done and without pay (259).

A formal statement of the Adkins widows and Families and the Council of the Southern Mountains, Inc., challenges MESA to translate the lessons of the past into accident prevention strategies for the future. Despite the awkwardness of their language, the statement reveals a clear plan for improving mine

safety and health:

1. Only allowing a minimal work force underground at the time;
2. punching out two entries nearly simultaneously;
3. increase the rock dusting requirements;
4. wear or have on hand SCSRs [self-rescuer devices];
5. required notification of MSHA; and
6. increased requirements and monitoring of ventilation (MSHA Oversight hearings January 1982, p. 271).

Their report challenges the assumption that individuals cause accidents, yet encourages MSHA to design mine safety programs with human as well as technical factors in mind:

> Noting the increase in multiple fatal accidents, the testimony pointed out the need to design mines for safety around human error (whether that error be management or labor) although noting that in 1980 and 1981 a review of MSHA fatal reports indicated that in roughly 80% of the cases management negligence was a contributing factor; as compared to only 35 to 40% of all fatals which included an employee-contributing factor. The multiple fatals point out the <u>flaw</u> in pointing to <u>individuals</u> as causes, but strongly suggests the need to design the workplace and machinery with the past safety lessons in mind (271).

Despite their losses, the widows speak in the clear voice of survivors rather than victims, looking to the future. The summary concludes with homely advice not to "set back" but to keep moving forward in the face of tragedy:

> Mine safety...lies in common sense practical answers. Not in setting back bemoaning the accidents, but in using present reserves to prevent tragedies. It is a question of committment [sic] to mine safety, a question of translating accidents into prevention (272).

If the women's voices make such sense, why are they not heard?

First, the women in mining communities have not learned the language of *Ubereinstimmungssucht* -- agreement addiction -- the unarticulated code beneath the carefully categorized data in the inspection reports -- a code that intentionally or unintentionally operates to maintain power structures within mining communities. When Jennifer Boggs testifies that her husband lacked effective safety training, for example, Eugene Johnston, Representative from North Carolina challenges the authority of her testimony. As the following excerpt reveals, J. Davitt McAteer answers Johnston's challenges -- the male voices usurping the female testimony in the quest for a single representation of "truth":

> MR. JOHNSTON. I note in your statement "training should be mandatory before a man steps in the mines." That is in fact the case now.
>
> MR. MCATEER. Mr. Chairman, for the record it is the training requirement and the whole discussion of the training requirement, and Chairman Gaydos' information grew out of the Scotia disaster.
>
> MR. JOHNSTON. We are aware of that, but her statement "training should be mandatory" is not in accordance with the facts, is it, Mr. McAteer?...Don't you think we should be very, very concerned with truth in this hearing in noting moving a training center to another location does not mean it is being closed? ...
>
> MR. JOHNSTON. What you are saying is in your opinion training is now being deemphasized?
>
> MR. MCATEER. That is correct.
>
> MR. JOHNSTON. Anything else, Mrs. Boggs? (*MSHA Oversight Hearings*260)

In their home communities and in the oversight hearings, they lack

the elements of credibility that give weight to their evidence: technical expertise, favorable reputation, corporate status, values similar to the reader, and "characteristics in [their] writing which show them to be understanding, well-informed, carefully organized, articulate, and fair minded" (Burnett).

Second, as a result of their lack of expertise, women are excluded from the salient and silent power structures that control discourse in mining communities. Evidence in 1977 Congressional oversight hearings, for example, suggests that inspectors soon learned "not to mess with the boys from Hazard." In a handwritten memo, for example, Henry Standford tells Paul Scaff that Gene Greenlee wants him taken off the investigation (3-16-81). Stanford tells Scaff to reclassify violations as Class II rather than Class I to keep the mines operating. If inspectors failed to cooperate or issued too many citations, they were transferred to Washington. In one case, a Federal inspector served on the board of directors of a small Kentucky mine.

Third, as this analysis suggests, conventions of discourse maintain power structures within the mining community. Even the best inspectors slavishly followed models in the *Manual for Investigation of Coal Mine Disasters* and thus gave passive forms an authority that prevented active risk reduction strategies in the mines.

Finally, Steven Lukes' analysis of power suggests a more generalized explanation for women's exclusion from discourse in mining communities (Lukes; Gaventa). According to Lukes, philosophers have described one-, two-, and three-dimensional models of power relationships: In the one-dimensional relationship, power reveals itself visibly in situations of conflict and decision-making (Gaventa 5-8). In simplest terms, powerful people make decisions and prevail in power struggles. Political silence, then, reflects "consensus." (Gaventa 7). In the two-dimensional model of power developed by

Bachrach and Baratz, the powerful not only prevail in active conflicts, but determine the agenda of the struggle itself (10). Political silence in this model reflects the suppression of options and alternatives in the conflict. In the "three-dimensional" model of power that Lukes proposes, the powerless internalize the beliefs, myths, symbols and values that preserve unequal power structures. Gaventa writes:

> The culture of silence may preclude the development of consciousness among the powerless thus lending to the dominant order an air of legitimacy. As in the sense of powerlessness, it may also encourage a susceptibility among the dependent society to internalization of the values of the dominant themselves (18).

Beula Gibson's testimony reveals the degree to which women have internalized the silent power structures of the mining community. Although her responses demonstrate a clear understanding of the technical details of rock dusting, the role of inspectors, the difference between union and non-union mines, and the influence of Ford B. Ford as head of the Mine Safety and Health administration, Gibson depreciates the value of her testimony and claims that she speaks only as the vehicle of her dead husband's voice:

> I realize that since I actually was never inside the mines in which my husband lost his life, and since I did not work on that particular shift, that Bert Combs, the attorney for Adkins Coal Co., might say that anything I can relate has nothing to do with what occurred at the mine. However, my husband cannot speak for himself, and I do know things that he told me and things that I observed (245).

IMPLICATIONS FOR TECHNICAL WRITING

A feminist perspective allows researchers to analyze the symbols,

formats, and processes that silence the human element in objective scientific discourse, not merely to alter power relationships, but to improve the lives and safety of workers. In this sense, feminism forces us to acknowledge the moral and ethical power of language as well as the political power of language. As Sheila Mullet argues, until we listen to the alternate voices and acquire a painful awareness of suffering, we inadvertently perpetuate it:

> 'good' people, nice people, [she writes] people of good will, whom I do not hesitate to call "moral" in the ordinary sense of that term, myself included, all participate in and perpetuate, even extend and legitimate violence against women simply by going about our business in an ordinary way. We do so primarily by our quotidian participation in social patterns and institutions which make up the bulk of everyday life' (115).

To counter this perpetuation, she urges that we must "experience the suffering of women ... experience the shock of seeing the 'normal' categories of interpretation shift before a perception of almost inchoate possibilities of social transformation" (115).

From this perspective, the silencing of women's testimony raises fundamental issues for technical writers about texts excluded from traditional corporate communication networks. A feminist analysis

- forces us to reconsider questions of literacy, knowledge and expertise.
- raises issues about what counts as evidence in a closely controlled corporate structure;
- raises issues about how we value information when it comes from sources outside the network of experts and those credentialed to speak in corporate networks;
- raises questions about how we structure information to achieve polit-

ical, social, and economic ends;

o raises questions about the genres we admit and those that we exclude;

o raises questions about the practice -- and costs -- of documentation and report-writing for historical purposes;

o raises questions about the gendered assumptions that structure the prescriptions and recommendations of the texts we use and the practices we teach;

o raises questions about how discourse reflects both the salient and silent power structures in discourse communities; and finally,

o raises questions about how that silencing prevents successful risk management and assessment.

By all standards of technical writing, the discourse these women speak is inarticulate, unstructured, and un-objective, but like Cassandra, they speak the truth in the face of agreement addiction. When we shift perspectives, however, objective scientific discourse reveals its own inadequacies.

A feminist analysis demands that technical writers acknowledge the silent power structures that govern public discourse, not because we are interested in theoretical constructs about language, but because those power structures affect the fabric of technology upon which we all depend. As the examples in the mine disasters show, the silenced voices may already know the answers to problems that continue to puzzle experts.

NOTES

1. In limiting the scope of this paper to the exclusion of women's experiential knowledge, I do not mean to suggest that (male) miners' experiential knowledge is not also silenced or potentially significant. I have written elsewhere how the concept of imminent danger erects arbitrary distinctions

between the engineer as "Rational Man" and the miners he [*sic*] must protect. Such arbitrary distinctions also obstruct effective risk management and assessment (Sauer, "The Engineer as Rational Man").

2. In February, 1992, I conducted interviews with agency personnel at the Mine Safety and Health Administration, Arlington, VA, as part of an ethnographic research project under a grant from the National Science Foundation. Agency personnel referred to in this paper graciously consented to interviews but could not be identified by name in this paper. I am grateful to Rachelle Hollander, National Science Foundation, and the Program in Ethics and Values Studies in Science and Technology of the National Science Foundation for their generous support of this project.

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